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FLOOD INSURANCE STUDY

VILLAGE OF COAL GROVE, OHIO

LAWRENCE COUNTY

REVISED

DECEMBER 15, 1989

Federal Emergency Management Agency

COMMUNITY NUMBER - 390326

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

This publication incorporates revisions to the original Flood Insurance Study. These revisions are presented in Section 9.0.

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Flood Profiles

Ohio River Panel 01P

PUBLISHED SEPARATELY:

Flood Insurance Rate Map

FLOOD INSURANCE STUDY

VILLAGE OF COAL GROVE,
LAWRENCE COUNTY, OHIO

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Village of Coal Grove, Lawrence County, Ohio, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert the Village of Coal Grove to the regular program of flood insurance by the Federal Emergency Management Agency (FEMA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

This Flood Insurance Study was prepared by compiling existing hydrologic and hydraulic technical and scientific data prepared by other organization(s) originally for purposes other than the National Flood Insurance Program (NFIP). The data were identified as the best available at the time of compilation of this Flood Insurance Study and should depict the general conditions of the flooding sources with relative accuracy. FEMA performed a cursory review and accepted the data as valid for purposes of this Flood Insurance Study and the NFIP. However, if better information is known to exist or has been developed since the date of this report, the information should be immediately forwarded to the Natural and Technological Hazards Division, Federal Emergency Management Agency, Chicago, Illinois, for consideration for revision of this study.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.3 (c). In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (COE), as reported in "Ohio River Profiles" (Reference 1).

The sources of frequency data included the U.S. Geological Survey (USGS), the U.S. Department of Agriculture, Soil Conservation Service (SCS), the COE, the Miami Conservancy District and state reports.

1.3 Coordination

On August 19, 1982, the results of this study were reviewed and accepted at a final coordination meeting attended by representatives of the community and FEMA.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Village of Coal Grove, Lawrence County, Ohio. The area of study is shown on the Vicinity Map (Figure 1).

The scope and methods of study were proposed to and agreed upon by FEMA and the Village of Coal Grove.

The Ohio River, within the corporate limits, was studied by detailed methods.

2.2 Community Description

The Village of Coal Grove is located in southwestern Lawrence County in southern Ohio. The village is bordered by the City of Ironton to the northwest, the Ohio River, the unincorporated areas of Boyd County, Kentucky and the City of Ashland, Kentucky, to the southwest, and the unincorporated areas of Lawrence County, Ohio on all other sides. In 1980, the population was 2,602 (Reference 2).

The Ohio River, finding its way to the flood plains of Coal Grove, collects from a drainage area of about 60,000 square miles; some, originating as far away as southwestern New York State in the headwaters of the Allegheny River. The Allegheny River joins the Monongahela River at Pittsburgh to form the Ohio River, 323 river miles from Coal Grove. During floods, the river rises slowly and remains out of banks for a considerable time.

The entire reach of the Ohio River along Lawrence County is within the navigation pool maintained by the Greenup Dam.

The COE is responsible for flood control projects and navigation facilities along the 981 miles of the Ohio River from Pittsburgh to its confluence with the Mississippi River at Cairo. The drainage area at Pittsburgh is 19,100 square miles and at the mouth, 203,940 square miles. The main stem of the Ohio River falls 429 feet in its 981-mile course from Pittsburgh to Cairo. It

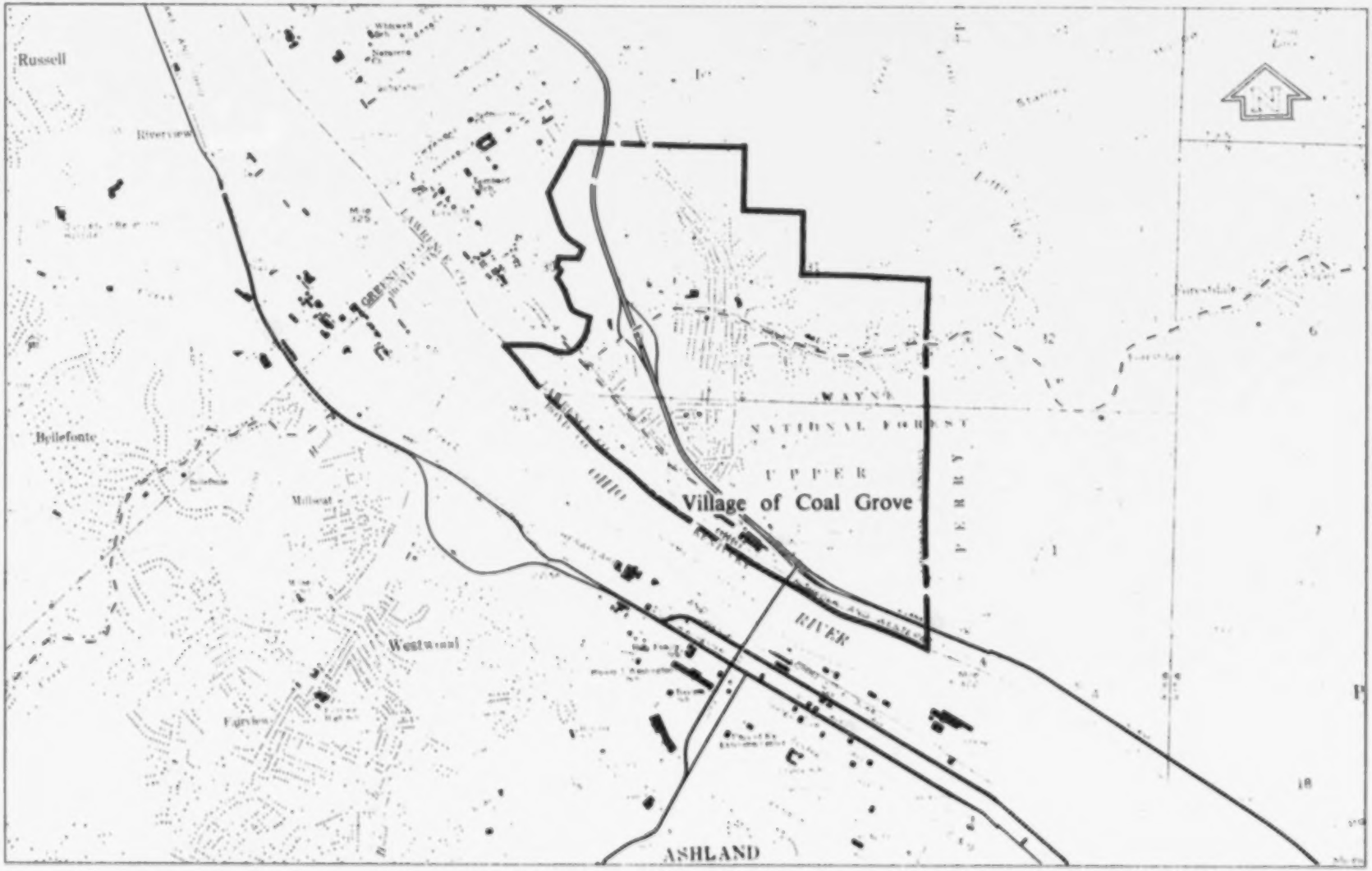


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF COAL GROVE, OH
(LAWRENCE CO.)

APPROXIMATE SCALE
3000 0 3000 6000 9000 FEET

VICINITY MAP

flows in a general southwest direction, but this varies considerably, changing to all points from north to south in relatively short reaches. The valley is rather narrow for the size of the drainage area, reflecting the glacial changes. It ranges in average width from less than one-half mile in the Pittsburgh to Wheeling reach to more than one mile between Cincinnati and Louisville. At Louisville, it widens to about four miles and then contracts to a mile below the Salt River. Near the mouth, it again widens to six to eight miles. Elevations vary from 100 to 600 feet below the plateaus surrounding the valley.

Development within the flood plains of Coal Grove is mainly a mixture of commercial and residential structures.

2.3 Principal Flood Problems

Major Ohio River floods are caused by excessive rainfall over the basin during the widespread storms which occur in the winter and spring months. Floods rise to their crests very slowly and remain above bankfull stage for extended periods. For example, the 1937 flood took 12 days to rise to its crest and remained out of banks for over two weeks. The much smaller flood of March 1967 rose to its crest in five days and remained out of banks for over a week. The maximum rate of rise during a major flood normally is less than one-half foot per hour.

Newspaper accounts and other historical records for the 19th century show that large Ohio River floods occurred in 1806, 1832, 1847, 1852, 1865, 1872, 1880, and 1884. Major floods in the 20th century have occurred in 1913, 1936, 1937, 1945, 1950, and 1963. Lesser floods over the past two centuries are too numerous to list here.

PAST FLOOD CREST ELEVATIONS

USGS GAGING STATION
ASHLAND, KENTUCKY

(OHIO RIVER MILE 322.5)

DATE OF CREST	Estimated Peak Discharge cubic feet per second (cfs)	Elevation (NGVD)
January 27, 1937	690,000	555.3
March 31, 1913	669,000	551.8
February 12, 1884	620,000	550.5
April 17, 1948	589,000	547.0

Some areas within the Coal Grove local protection project are still subject to some degree of flooding because of drainage from within the protected area and the necessity for ponding some of this drainage while the flood gates are closed during floods on the Ohio River. Additional hazards would be created should these ponding areas be encroached upon, thereby decreasing the storage capacity of these areas.

2.4 Flood Protection Measures

Canalization of the Ohio River was completed in 1929. The original systems of 46 locks and dams are being replaced by 19 authorized or completed higher lift structures. In 1981, there were still 20 locks and dams. These navigation aids will have no essential effect on flood stages since the gates on the new dams would be fully open during a major flood.

Floodwalls and levees, built along the Ohio River and Ice Creek, protect most of the village from the 100-year flooding on the Ohio River. This local protection project was constructed after the 1937 flood. These structures maintain at least three feet of freeboard over the 1937 flood. However, 500-year floodwaters are able to innundate the village since the levees do not provide complete closure around the village at that flood elevation.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 per cent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one per cent chance of annual occurrence) in any 50-year period is about 40 per cent (four in ten), and for any 90-year period, the risk increases to about 60 per cent (six in ten). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail affecting the community.

The following information is principally taken from the "Ohio River Basin Comprehensive Survey" (Reference 3).

Frequency data for the Ohio River were supplied by the COE, Ohio River Division Office. Natural maximum annual frequency curves were developed by the COE in accordance to the method in "Statistical Methods in Hydrology" (Reference 4).

The computed natural statistics (mean standard deviation, coefficient of skew) for the entire period of record were adjusted by reconciling adjacent points and comparison on drainage area proportions, to produce consistent statistics throughout the length of the main stem. Stage frequency curves were developed by converting flows to stage through the use of crest stage-maximum discharge relationships plotted from historical data, and extended rating curves prepared in connection with the Ohio River Standard Project Flood (SPF) Study.

To determine modified flood peaks on the Ohio River, 12 historical floods, plus three hypothetical ones of greater magnitude, were used in the analyses of flow modification. The flows for these 15, considered representative of the basin, were modified by the operation of COE reservoirs, completed or under construction.

Frequency curves for the reservoir modified discharges were developed for 20 locations on the main stem of the Ohio River. The discharges in the following table are at nearest gage to the particular study locations.

Peak discharges for the 10-, 50-, 500-, and 500—year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
OHIO RIVER					
At Huntington, West Virginia (Ohio river mile 311.5)	55,900	426,000	517,000	560 000	655,000

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the streams in the community were carried out to provide estimates of the elevations of the floods of the selected recurrence intervals along each flooding source studied in detail.

Where cross sections are available, they were obtained by topographic surveying and hydrographic surveys.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles. For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the Flood Boundary and Floodway Map.

The following information is principally taken from the "Ohio River Basin Comprehensive Survey" (Reference 3).

To determine the effect of the combination of reservoirs on tributary or main stem flow, stream regulation studies and system analyses are required. The COE reservoirs have been studied, but impoundments operated by others were not considered, with the exception of the Tennessee Valley Authority.

The 100-year, 50-year, and 10-year flood elevations were taken from the COE January 1981 water-surface profiles, which reflect the reductions of flow provided by Group "A" Reservoirs. A list of these reservoirs, completed and under construction upstream of study area, is given in Table 2 (Reference 1). Only upstream reservoirs affect flood flows at the study site.

Previously established flood routing procedures for the branches and upstream reaches of tributaries were used for this study. For the main stem and the lower reaches of major tributaries, the method and routing coefficients for the SPF Studies are applicable to large flood flows. Therefore, profiles were determined by flood routing and backwater computations as pertinent for the reach and the frequency of the flood.

A method of determing the effect of impoundments on flood flows is by reservoir holdout. The difference between a natural hydrograph and one resulting from the reservoir modification is routed downstream. This is to determine the lowering of crest discharge from storage, using the standard methods explained in Corps EM 1110-2-1408. This is generally simpler than routing the modified hydrograph which must be combined with tributary inflow. The routing of floods and reservoir holdouts, programmed on an electronic computer by the Ohio River Division COE, was used for this study.

The term SPF is defined as a hypothetical flood, representing the critical volume and peak discharge that may be expected from a combination of meteorologic and hydrologic conditions reasonably characteristic of the geographical region. It represents a standard against which the degree of flood protection selected, called the Project Design Flood (PDF), may be judged and compared with protection provided by similar projects in other localities.

Following the flood of January-February 1937, studies of a comprehensive flood control plan for the Ohio River basin were made. These included the determination of a SPF for the main stem of the Ohio River. The system of reservoirs recommended on the basis of the 1937 study essentially that

TABLE 2

GROUP A RESERVOIRS
(Affecting Flood Flows)

OHIO RIVER MILE	BASIN	RESERVOIR	
0	ALLEGHENY	Conemaugh	Mohoning
		Crooked Creek	Tionesta
		East Branch Clarion	Union City
		Kinzua	Woodcock Creek
		Loyalhanna	
0	MONONGAHELA	Tygart	Youghiogheny
25.4	BEAVER	Berlin	Shenango
		Mosquito Creek	Michael J. Kirwan
172	MUSKINGUM	Atwood	Mohawk
		Beach City	Mohicanville
		Bolivar	North Branch Kokosing
		Charles Mill	Piedmont
		Clendening	Pleasant Hill
		Dillon	Senecaville
		Dover	Tappan
		Leesville	Wills Creek
184.6	LITTLE KANAWHA	Burnsville	
199.3	HOCKING	Tom Jenkins	
265.7	KANAWHA	Bluestone	Sutton
		Summersville	
305.2	GUYANDOT	R.D. Bailey	
313.3	TWELVEPOLE CREEK	Beech Fork	East Lynn
317.1	BIG SANDY	Dewey	North Fork Pound
		Fishtrap	Paintsville
		J.W. Flannagan	

authorized by the 1938 Flood Control Act and prior acts, would reduce the project flood to stages close to the maximum of record along the Ohio River from Wellsville, Ohio to the mouth. The PDF profile then selected for construction of local protection works was established as the modified SPF between Pittsburgh and Wellsville, and the maximum flood of record between Wellsville and Cairo.

Subsequent to establishment of the 1937 PDF, changes have occurred that make construction of some of the presently authorized reservoirs impractical. Because of these and in light of accumulated experience, the latest development in meteorologic and hydrologic techniques and currently available data, a reappraisal of the SPF was made and reported in the "Ohio River Comprehensive Survey" (Reference 3); however, there were no adjustments made to the PDF.

For purposes of this Flood Insurance Study, the PDF is considered similar to the 500-year flood in magnitude of the event and is shown as the 500-year flood. Local protection works constructed since 1937 provide at least three feet of freeboard above the PDF.

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals.

The hydraulic analyses for this study are based only on the effects of unobstructed flow. The flood elevations as shown on the profiles are, therefore, considered valid only if hydraulic structures, in general, remain unobstructed and if channel and overbank conditions remain essentially the same as ascertained during this study.

All elevations are referenced from National Geodetic Vertical Datum of 1929 (NGVD); elevations reference marks used in the study are shown on the maps.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by FEMA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100-year and the 500-year floods have been delineated using USGS topographic data in the COE reports (Reference 5).

The boundaries of the 100- and 500-year floods are shown on the Flood Insurance Rate Map. Small areas within the flood boundaries may lie above

elevations, and, therefore, not be subject to flooding; owing to lack of detailed topographical information or to limitations of the map scale, such areas are not shown. In cases where the 100-year and the 500-year flood boundaries are close together, only the 100-year boundary has been shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights. Minimum standards of FEMA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. A floodway was computed for the unincorporated areas of Boyd County, Kentucky (Reference 6).

As shown on the Flood Boundary and Floodway Map, the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

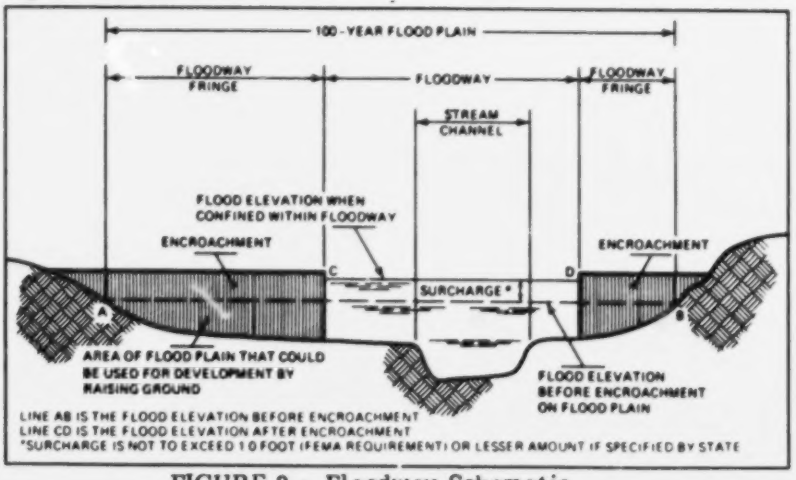

100-YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE *
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE IS NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FIGURE 2 - Floodway Schematic

The floodways in this report are recommended to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, FEMA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHF), and flood insurance zone designations for each flooding source affecting the Village of Coal Grove.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 per cent of the reach.

Average Difference Between 10- and 100-year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The locations of the reaches determined for the Village of Coal Grove are shown on the Flood Profiles and are summarized in Table 3, "Flood Insurance Zone Data."

5.2 Flood Hazard Factors

The FHF is used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest 0.5 foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year flood water-surface elevations is greater than 10.0 feet, accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the incorporated area of the Village of Coal Grove was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zone A16: Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations are shown, and zones subdivided according to FHF.

Zone B: Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; or areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.

Zone C: Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevations for each flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Village of Coal Grove is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by FEMA.

6.0 OTHER STUDIES

A Flood Insurance Study is in progress for the City of Ironton, Ohio (Reference 7). This Flood Insurance Study is in agreement with that study. Flood Insurance Studies have been published for the Unincorporated Areas of Boyd County and the City of Ashland, Kentucky (References 6 and 8). The 10-, 50-, and 100-year flood profiles for this study match the respective flood profiles in these studies. The 500-year flood profile in this study is approximately two feet higher than the flood profiles shown in those Flood Insurance Studies, since the 500-year profile in this study is the actual profile of the 1937 flood.

The Huntington District COE has prepared a Flood Plain Information (FPI) report on the Ohio River (Reference 5) for the Ohio Department of Natural Resources. The profiles shown in that FPI report are superseded by the new Ohio River study (Reference 1), which is in agreement with this study.

A Flood Hazard Boundary Map has been published for the community (Reference 9). The differences between the Flood Hazard Boundary Map and this study are justified due to the more detailed nature of this Flood Insurance Study.

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FLOOD HAZARD FACTOR	ZONE	BASE FLOOD ELEVATION[3] (NGVD)
		10% (10-YEAR)	2% (50-YEAR)	0.2% (500-YEAR)			
OHIO RIVER							
REACH 1	0005	–8.0	–2.1	7.9	080	A16	VARIES–SEE MAP

[1]FLOOD INSURANCE RATE MAP PANEL
[2]WEIGHTED AVERAGE
[3]ROUNDED TO NEAREST FOOT

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF COAL GROVE, OH

(LAWRENCE CO.)

FLOOD INSURANCE ZONE DATA

OHIO RIVER

This report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the National Flood Insurance Program.

7.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, Federal Emergency Management Agency, 300 South Wacker Drive, (24th Floor), Chicago, Illinois 60606.

8.0 REFERENCES AND BIBLIOGRAPHY

1. U.S. Army Corps of Engineers, Ohio River Division, Ohio River Profiles, Cincinnati, Ohio, January 1981.

2. Ohio Department of Economic and Community Development, Federal Census of Population, Ohio, April 1, 1980.

3. U.S. Army Corps of Engineers, Ohio River Basin, Comprehensive Survey, Appendix C, "Hydrology," Cincinnati, Ohio, August 1966.

4. U.S. Water Resources Council, Sacramento District, Office of the Chief, Statistical Methods in Hydrology, Leo R. Beard, July 1952 and January 1962.

5. Ohio Department of Natural Resources, Flood Plain Information, Ohio River, Lawrence County, Unincorporated Areas, Ohio.

6. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, County of Boyd, Unincorporated Areas, Kentucky, December 1980.

7. ————, Flood Insurance Study, City of Ironton, Ohio, (in progress).

8. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, City of Ashland, Kentucky, March 1978.

9. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Village of Coal Grove, Ohio, May 1976.

9.0 REVISIONS DESCRIPTION

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study was printed. Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood hazard data located at Coal Grove Town Hall, 513 Carlton Davidson Lane, Coal Grove, Ohio.

9.1 First Revision (Revised December 15, 1989)

a. Scope

The levee inadvertently shown as providing protection against the 100-year flood on the Ohio River for a portion of the community does not exist. Boundaries of the 100-year and 500-year floods have been redelineated using U.S. Army Corps of Engineers topographic maps at a scale of 1:3600, with a contour interval of 5 feet (Reference 10).

In addition, the format of this Flood Insurance Study was revised to reflect the new FEMA Map Initatives Project format. All information previously shown on the Flood Boundary and Floodway Map was transferred to the Flood Insurance Rate Map and the zone designations were changed according to the new format.

b. Insurance Application

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

The reach determinations, Flood Hazard Factors, and flood insurance zones presented in Sections 5.1, 5.2, and 5.3 of this report and Table 3, Flood Insurance Zone Data, are no longer applicable.

c. Flood Insurance Rate Map

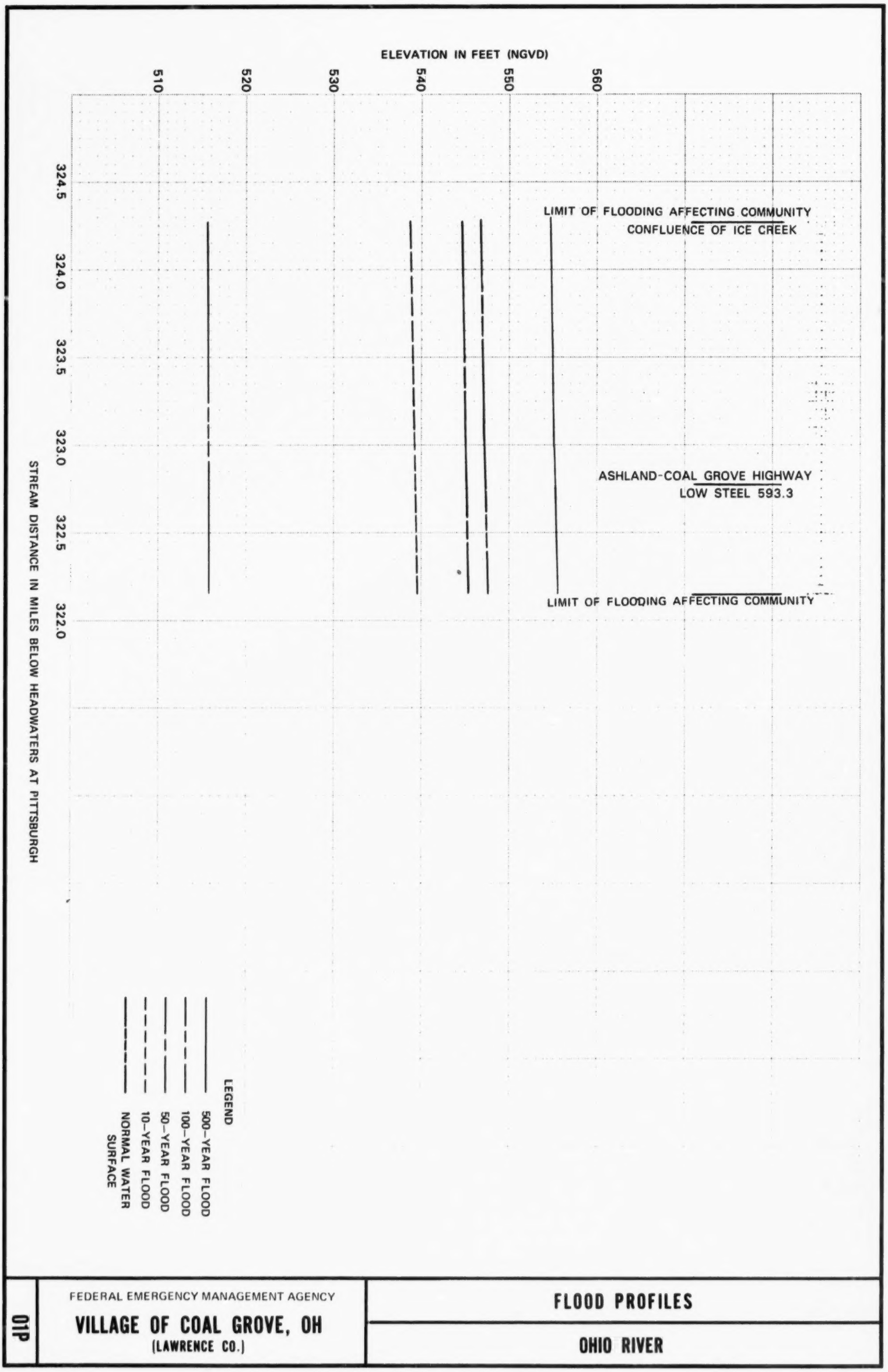
The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 9.1.b and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents used the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and flood computations.

d. References and Bibliography

10. U.S. Army Corps of Engineers, Greenup Locks and Dam Pool, Ohio River, Topographic and Property Survey, Ohio, Kentucky, and West Virginia, Scale 1:3600, Contour Interval 5 feet, March 1959.



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